

WSCF Laboratory

RECEIVED MAY 19, 2011

PO Box 650 S3-30
Richland, WA 99352



May 19, 2011

Michael Neely
CH2M-HILL PRC
PO Box 1600
Richland, WA 99352

Dear Michael Neely,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF112145

Reference: (1) SOW, Mod 2, #36587, Release 3
(2) HNF-SD-CD-QAPP-017, current version, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF112145

- * Cover Sheet (Attachment 1)
- * Narrative (Attachment 2)
- * Analytical Results (Attachment 3)
- * Sample Receipt Information (Attachment 4)

Very truly yours,

Electronically signed by Joseph Hale

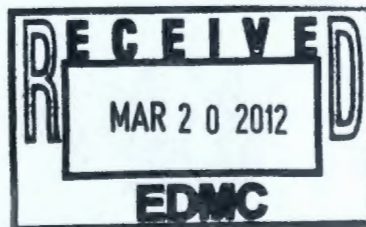
For Lab Manager

WSCF Analytical Lab

(509) 373-7495

Attachments 4

CC: w/Attachments



File/LB

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF112145

Data Deliverable Date 05/09/11

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F11-104	B2D7B5	112145001	WATER	05/02/11	05/02/11

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Introduction

A sample was received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. The sample was analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, "FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER."*

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

It should be noted that the attached chain of custody was not stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving. However, based on procedure LO-090-403 form "NOTICE OF IMPROPER SAMPLE SUBMITTAL" was not submitted and was not stamped "NOT ICED". No anomaly was noted during sample receipt.

The following generic data qualifiers (i.e., B, D, U and J) may be applicable to this report, as appropriate

- **B** – Sample results with a concentration greater than the MDL but less than the PQL are B flagged (applies to inorganic and wet chemical analyses), as appropriate.
- **D** – Sample results are D flagged if dilution(s) were required, as appropriate.
- **J** – Sample results with a concentration greater than the MDL but less than the PQL are J flagged (applies to organic analyses), as appropriate.
- **U** – Analyzed for but not detected above limiting criteria. Relative Percent Difference (RPD) values associated with an analyte qualified with a "U" are not applicable.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report* for a complete listing of approved analytical methods.

Inorganic Comments

ICP-AES Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- All applicable QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Copper and Vanadium – Detected in the Blank and evaluated. Affected sample results in this batch were “C” Flagged.
- Strontium – Exceeded spiking levels by a factor of 4. Spike recoveries and associated RPDs are not valid.
- All other applicable QC controls are within the established limits.

Organic Comments

Semi-VOA – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Analysis performed by 8270-PAH SIM method.
- The Matrix Spike was lost during extraction. The Matrix Spike Duplicate was renamed as the Matrix Spike for reporting reasons. Sample Issue Resolution Form SDR11-260 was generated. The MSD was reported as the MS and the data was reported.
- All other applicable QC controls are within the established limits.

We certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the Analytical Laboratory Manager (or designee) and the Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

SAMPLE ISSUE RESOLUTION	SIR NUM	SIR11-260
	REV NUM	1
	DATE INITIATED	5/5/2011

SAMPLE EVENT INFORMATION

SAF NUM(S) F11-104, F11-107
OPERABLE UNIT(S) 200-MG-1
PROJECT(S) 200-MG-1
SAMPLE EVENT TITLE(S) 200-MG-1 OU Waste Sites
LABORATORY Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES 2
SAMPLE NUMBERS B2D798, B2D785
SAMPLE MATRIX
COLLECTION DATE 5/2/2011 - 5/2/2011
SDG NUM WSCF112146, WSCF112145

ISSUE BACKGROUND

CLASS Laboratory Issue
TYPE Quality Control Failure
DESCRIPTION The SVOCs were prepped and analysed. Upon analytical data review, the MS sample had very abnormal results (extremely low) indicating the MS sample had been lost during prep. The MSD, LCS, and surrogate recoveries were acceptable.

DISPOSITION

DESCRIPTION DO NOT REPORT THE MS. SINCE IT APPEARS TO NOT BE VALID MS DATA. REPORT THE MSD (AS A MS), THE LCS, AND BLANK AND NOTE IN THE NARRATIVE.
JUSTIFICATION Submitted by: Heather Medley Date: 5/5/2011
Accepted by: Ray Bauer Date: 5/9/2011

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 19 pages
Including cover page

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Michael Neely

Contract # MOA-FH-CHPRC-2008
Group # WSCF112145
Report Date May 19, 2011

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Richard Barker

Solid samples results that have a 'Percent Solid' test are reported on a "dry weight basis", except results of TCLP, Percent Solid, and Total Activity. If no 'Percent Solid' test is reported then the results are reported on an "as received" basis.

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Batch QC List

Attention Michael Neely
Department Inorganic

Group # WSCF112145

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
181551	181554	4	BLANK	54653	BLANK		ICP-2008 MS All possible metal
181551	181554	5	LCS	54654	LCS		ICP-2008 MS All possible metal
181551	181554	6	MS	54655	B2CCB6(112108010MS)	112108010	ICP-2008 MS All possible metal
181551	181554	7	MSD	54656	B2CCB6(112108010MSD)	112108010	ICP-2008 MS All possible metal
181551	181554	30	SAMPLE	112145001	B2D7B5		ICP-2008 MS All possible metal
181942	181943	1	BLANK	55573	BLANK		ICP-6010 - All possible metals
181942	181943	2	LCS	55574	LCS		ICP-6010 - All possible metals
181942	181943	3	MS	55575	B2CJN0(112011008MS)	112011008	ICP-6010 - All possible metals
181942	181943	4	MSD	55576	B2CJN0(112011008MSD)	112011008	ICP-6010 - All possible metals
181942	181943	15	SAMPLE	112145001	B2D7B5		ICP-6010 - All possible metals

Batch QC List

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112145

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
181557	181712	1	BLANK	54678	BLANK		SW-846 8270D Semivolatiles (PAHSIM)
181557	181712	2	LCS	54679	LCS		SW-846 8270D Semivolatiles (PAHSIM)
181557	181712	3	MS	54680	B2D7B5(112145001MS)	112145001	SW-846 8270D Semivolatiles (PAHSIM)
181557	181712	4	SAMPLE	112145001	B2D7B5		SW-846 8270D Semivolatiles (PAHSIM)

Method Reference

Attention Michael Neely
Department Inorganic

Group # WSCF112145

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-505-411	Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES)		
	EPA SW-846	6010C	Inductively Coupled Plasma-Atomic Emission Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emission Spectrometry
LA-505-412	Determination of Trace Elements in Waters & Wastes by ICP-Mass Spectrometry		
	EPA-600/R-94-111	200.8	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112145

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-523-456	Semivolatile Sample Analysis by SW-846 Method 8270D		
	EPA SW-846	8000B	Determinative Chromagraphic Separations
	EPA SW-846	3510C	Separatory Funnel Liquid-Liquid Extraction
	EPA SW-846	8270D	Semivolatile Organic Compounds by Gas
	EPA SW-846	3545	Pressurized Fluid Extraction (PFE)
			Chromatography/Mass Spectrometry (GC/MS)
	HEIS	8270_SVOA_GCMS	Semivolatile Organic Compounds by Gas
			Chromatography/Mass Spectrometry(GC/MS)

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

WSCF Analytical Results Report

Attention Michael Neely
Department Inorganic

Group # WSCF112145

Sample # 112145001
SAF# F11-104
Sample ID B2D7B5

Matrix WATER
Sampled 05/02/11
Received 05/02/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICP Prep										05/16/11
ICP-AES										
Lithium	7439-93-2	LA-505-411	U	<4.0		ug/L	1	4.0	20	05/19/11
ICPMS Prep										05/03/11
ICP-MS										
Manganese	7439-96-5	LA-505-412	BD	0.367		ug/L	2	0.20	2.0	05/03/11
Nickel	7440-02-0	LA-505-412	UD	<0.40		ug/L	2	0.40	4.0	05/03/11
Silver	7440-22-4	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	05/03/11
Antimony	7440-36-0	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	05/03/11
Barium	7440-39-3	LA-505-412	UD	<0.40		ug/L	2	0.40	4.0	05/03/11
Beryllium	7440-41-7	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	05/03/11
Cadmium	7440-43-9	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	05/03/11
Chromium	7440-47-3	LA-505-412	UD	<1.0		ug/L	2	1.0	10	05/03/11
Cobalt	7440-48-4	LA-505-412	UD	<0.10		ug/L	2	0.10	0.50	05/03/11
Copper	7440-50-8	LA-505-412	DC	2.38		ug/L	2	0.20	2.0	05/03/11
Vanadium	7440-62-2	LA-505-412	BDC	0.487		ug/L	2	0.40	4.0	05/03/11
Zinc	7440-66-6	LA-505-412	BD	7.46		ug/L	2	1.6	10	05/03/11
Lead	7439-92-1	LA-505-412	D	11.7		ug/L	2	0.20	2.0	05/03/11
Strontium	7440-24-6	LA-505-412	UD	<0.20		ug/L	2	0.20	2.0	05/03/11

MDL = Minimum Detection
RQ = Result Qualifier
TP Err = Total Propagated
DF = Dilution Factor
+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary dilution factor.
E - Analyte is an estimate, see comment section.
N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Michael Neely
Department Inorganic

Group # WSCF112145

Sample # 112145001
SAF# F11-104
Sample ID B2D7B5

Matrix WATER
Sampled 05/02/11
Received 05/02/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Thallium	7440-28-0	LA-505-412	UD	<0.10		ug/L	2	0.10	1.0	05/03/11
Tin	7440-31-5	LA-505-412	BD	0.343		ug/L	2	0.10	1.0	05/03/11
Uranium	7440-61-1	LA-505-412	UD	<0.10		ug/L	2	0.10	0.40	05/03/11
Arsenic	7440-38-2	LA-505-412	UD	<0.80		ug/L	2	0.80	8.0	05/03/11
Selenium	7782-49-2	LA-505-412	UD	<0.60		ug/L	2	0.60	6.0	05/03/11
Boron	7440-42-8	LA-505-412	D	<0.00		ug/L	2			05/03/11

MDL = Minimum Detection
RQ = Result Qualifier
TP Err = Total Propagated
DF = Dilution Factor
+ - Indicates more than nine qualifier

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary dilution factor.
E - Analyte is an estimate, see comment section.
N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112145

Sample # 112145001
SAF# F11-104
Sample ID B2D7B5

Matrix WATER
Sampled 05/02/11
Received 05/02/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
8270 Prep										05/03/11
SW-846 8270D										
Naphthalene	91-20-3	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Acenaphthylene	208-96-8	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Acenaphthene	83-32-9	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Fluorene	86-73-7	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Phenanthrene	85-01-8	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Anthracene	120-12-7	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Fluoranthene	206-44-0	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Pyrene	129-00-0	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Benzo(a)anthracene	56-55-3	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Chrysene	218-01-9	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Benzo(b)fluoranthene	205-99-2	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Benzo(k)fluoranthene	207-08-9	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Benzo(a)pyrene	50-32-8	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Indeno(1,2,3-cd)pyrene	193-39-5	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Dibenzo(a,h)anthracene	53-70-3	LA-523-456	U	<1		ug/L	1	1	4	05/04/11
Benzo(g,h,i)perylene	191-24-2	LA-523-456	U	<1		ug/L	1	1	4	05/04/11

MDL = Minimum Detection
RQ = Result Qualifier
TP Err = Total Propagated
DF = Dilution Factor
+ - Indicates more than nine qualifier

B - Analyte was detected in both the BLANK and SAMPLE
D - Analyte was reported at a secondary dilution factor.
E - The calibration exceeds the calibration range (GC/MS).
J - Analyte < lowest calibration but >= MDL.
N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
U - Analyzed for but not detected above limiting criteria.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112145

QC Batch 181557
Associated Samples 112145001

Test SW-846 8270D Semivolatiles (PAHSIM)

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #54678							
Naphthalene	91-20-3		<1	ug/L				U	05/04/11
Acenaphthylene	208-96-8		<1	ug/L				U	05/04/11
Acenaphthene	83-32-9		<1	ug/L				U	05/04/11
Fluorene	86-73-7		<1	ug/L				U	05/04/11
Phenanthrene	85-01-8		<1	ug/L				U	05/04/11
Anthracene	120-12-7		<1	ug/L				U	05/04/11
Fluoranthene	206-44-0		<1	ug/L				U	05/04/11
Pyrene	129-00-0		<1	ug/L				U	05/04/11
Benzo(a)anthracene	56-55-3		<1	ug/L				U	05/04/11
Chrysene	218-01-9		<1	ug/L				U	05/04/11
Benzo(b)fluoranthene	205-99-2		<1	ug/L				U	05/04/11
Benzo(k)fluoranthene	207-08-9		<1	ug/L				U	05/04/11
Benzo(a)pyrene	50-32-8		<1	ug/L				U	05/04/11
Indeno(1,2,3-cd)pyrene	193-39-5		<1	ug/L				U	05/04/11
Dibenzo(a,h)anthracene	53-70-3		<1	ug/L				U	05/04/11
Benzo(g,h,i)perylene	191-24-2		<1	ug/L				U	05/04/11
LCS		QC Sample #54679							

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112145

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Naphthalene	91-20-3		24	ug/L	80.5	59 - 113				05/04/11
Acenaphthene	83-32-9		25	ug/L	84.1	60 - 115				05/04/11
Fluorene	86-73-7		27	ug/L	90	61 - 116				05/04/11
Anthracene	120-12-7		27	ug/L	88.4	30 - 140				05/04/11
Pyrene	129-00-0		24	ug/L	80.3	56 - 135				05/04/11
Benzo(a)pyrene	50-32-8		26	ug/L	86.5	44 - 148				05/04/11
MS										
QC Sample #54680										
Original 112145001										
Naphthalene	91-20-3	<1	26	ug/L	88.9	64 - 112				05/04/11
Acenaphthene	83-32-9	<1	26	ug/L	87.6	62 - 116				05/04/11
Fluorene	86-73-7	<1	27	ug/L	91.6	65 - 112				05/04/11
Anthracene	120-12-7	<1	26	ug/L	90.5	65 - 114				05/04/11
Pyrene	129-00-0	<1	26	ug/L	89.2	67 - 123				05/04/11
Benzo(a)pyrene	50-32-8	<1	27	ug/L	92.6	52 - 129				05/04/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112145

QC Batch 181942 Test ICP-6010 - All possible metals
Associated Samples 112145001

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			QC Sample #55573							
Lithium	7439-93-2		<4.0	ug/L					U	05/19/11
LCS			QC Sample #55574							
Lithium	7439-93-2		558	ug/L	111.6	80 - 120				05/19/11
MS			QC Sample #55575 Original 112011008							
Lithium	7439-93-2		535	ug/L	107	75 - 125				05/19/11
MSD			QC Sample #55576 Original 112011008							
Lithium	7439-93-2		523	ug/L	104.6	75 - 125	2.30	20	Paired 55575	05/19/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112145

QC Batch 181551
Associated Samples 112145001

Test ICP-2008 MS All possible metal

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #54653								
Manganese	7439-96-5		<0.10	ug/L					U	05/03/11
Nickel	7440-02-0		<0.20	ug/L					U	05/03/11
Silver	7440-22-4		<0.10	ug/L					U	05/03/11
Antimony	7440-36-0		<0.30	ug/L					U	05/03/11
Barium	7440-39-3		<0.20	ug/L					U	05/03/11
Beryllium	7440-41-7		<0.10	ug/L					U	05/03/11
Cadmium	7440-43-9		<0.10	ug/L					U	05/03/11
Chromium	7440-47-3		<0.50	ug/L					U	05/03/11
Cobalt	7440-48-4		<0.050	ug/L					U	05/03/11
Copper	7440-50-8		0.102	ug/L					B	05/03/11
Vanadium	7440-62-2		0.220	ug/L					B	05/03/11
Zinc	7440-66-6		<0.80	ug/L					U	05/03/11
Lead	7439-92-1		<0.10	ug/L					U	05/03/11
Strontium	7440-24-6		<0.10	ug/L					U	05/03/11
Thallium	7440-28-0		<0.050	ug/L					U	05/03/11
Tin	7440-31-5		<0.050	ug/L					U	05/03/11
Uranium	7440-61-1		<0.050	ug/L					U	05/03/11
Arsenic	7440-38-2		<0.40	ug/L					U	05/03/11
Selenium	7782-49-2		<0.30	ug/L					U	05/03/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112145

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS		QC Sample #54654								
Manganese	7439-96-5		39.6	ug/L	98.9	85 - 115				05/03/11
Nickel	7440-02-0		36.1	ug/L	90.2	85 - 115				05/03/11
Silver	7440-22-4		40.3	ug/L	100.7	85 - 115				05/03/11
Antimony	7440-36-0		38.8	ug/L	96.9	85 - 115				05/03/11
Barium	7440-39-3		39.3	ug/L	98.3	85 - 115				05/03/11
Beryllium	7440-41-7		36.0	ug/L	89.9	85 - 115				05/03/11
Cadmium	7440-43-9		38.5	ug/L	96.2	85 - 115				05/03/11
Chromium	7440-47-3		40.3	ug/L	100.8	85 - 115				05/03/11
Cobalt	7440-48-4		39.0	ug/L	97.5	85 - 115				05/03/11
Copper	7440-50-8		37.0	ug/L	92.6	85 - 115				05/03/11
Vanadium	7440-62-2		39.6	ug/L	98.9	85 - 115				05/03/11
Zinc	7440-66-6		37.8	ug/L	94.5	85 - 115				05/03/11
Lead	7439-92-1		39.9	ug/L	99.7	85 - 115				05/03/11
Strontium	7440-24-6		39.8	ug/L	99.6	85 - 115				05/03/11
Thallium	7440-28-0		38.4	ug/L	95.9	85 - 115				05/03/11
Tin	7440-31-5		40.4	ug/L	100.9	85 - 115				05/03/11
Uranium	7440-61-1		40.4	ug/L	101	85 - 115				05/03/11
Arsenic	7440-38-2		38.0	ug/L	95	85 - 115				05/03/11
Selenium	7782-49-2		36.4	ug/L	91	85 - 115				05/03/11
MS		QC Sample #54655								
		Original 112108010								
Manganese	7439-96-5		36.8	ug/L	91.9	70 - 130				05/03/11
Nickel	7440-02-0		32.8	ug/L	81.9	70 - 130				05/03/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112145

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Silver	7440-22-4		37.7	ug/L	94.4	70 - 130				05/03/11
Antimony	7440-36-0		39.3	ug/L	98.2	70 - 130				05/03/11
Barium	7440-39-3		39.2	ug/L	98.1	70 - 130				05/03/11
Beryllium	7440-41-7		37.8	ug/L	94.4	70 - 130				05/03/11
Cadmium	7440-43-9		37.7	ug/L	94.2	70 - 130				05/03/11
Chromium	7440-47-3		38.1	ug/L	95.3	70 - 130				05/03/11
Cobalt	7440-48-4		36.2	ug/L	90.5	70 - 130				05/03/11
Copper	7440-50-8		32.7	ug/L	81.7	70 - 130				05/03/11
Vanadium	7440-62-2		37.7	ug/L	94.2	70 - 130				05/03/11
Zinc	7440-66-6		31.7	ug/L	79.2	70 - 130				05/03/11
Lead	7439-92-1		39.9	ug/L	99.8	70 - 130				05/03/11
Strontium	7440-24-6		39.7	ug/L	99.2	70 - 130			X	05/03/11
Thallium	7440-28-0		39.1	ug/L	97.7	70 - 130				05/03/11
Tin	7440-31-5		40.8	ug/L	102	70 - 130				05/03/11
Uranium	7440-61-1		42.2	ug/L	105.5	70 - 130				05/03/11
Arsenic	7440-38-2		39.0	ug/L	97.4	70 - 130				05/03/11
Selenium	7782-49-2		35.9	ug/L	89.8	70 - 130				05/03/11
MSD		QC Sample #54656								
		Original 112108010				Paired 54655				
Manganese	7439-96-5		38.3	ug/L	95.7	70 - 130	4.10	20		05/03/11
Nickel	7440-02-0		33.8	ug/L	84.5	70 - 130	3.10	20		05/03/11
Silver	7440-22-4		38.0	ug/L	94.9	70 - 130	0.50	20		05/03/11
Antimony	7440-36-0		40.0	ug/L	99.9	70 - 130	1.70	20		05/03/11
Barium	7440-39-3		38.8	ug/L	97.1	70 - 130	1.00	20		05/03/11
Beryllium	7440-41-7		37.2	ug/L	93.1	70 - 130	1.40	20		05/03/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112145

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
Cadmium	7440-43-9		38.2	ug/L	95.4 70 - 130	1.30	20		05/03/11
Chromium	7440-47-3		39.5	ug/L	98.7 70 - 130	3.50	20		05/03/11
Cobalt	7440-48-4		37.1	ug/L	92.8 70 - 130	2.50	20		05/03/11
Copper	7440-50-8		33.9	ug/L	84.6 70 - 130	3.50	20		05/03/11
Vanadium	7440-62-2		39.5	ug/L	98.8 70 - 130	4.80	20		05/03/11
Zinc	7440-66-6		32.9	ug/L	82.3 70 - 130	3.80	20		05/03/11
Lead	7439-92-1		39.9	ug/L	99.8 70 - 130	0.00	20		05/03/11
Strontium	7440-24-6		40.0	ug/L	100 70 - 130	0.80	20	X	05/03/11
Thallium	7440-28-0		39.0	ug/L	97.4 70 - 130	0.30	20		05/03/11
Tin	7440-31-5		40.7	ug/L	101.7 70 - 130	0.30	20		05/03/11
Uranium	7440-61-1		42.3	ug/L	105.6 70 - 130	0.10	20		05/03/11
Arsenic	7440-38-2		38.8	ug/L	97.1 70 - 130	0.30	20		05/03/11
Selenium	7782-49-2		36.2	ug/L	90.5 70 - 130	0.80	20		05/03/11

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112145

QC Batch 181557 Test SW-846 8270D Semivolatiles (PAHSIM)
Associated Samples 112145001

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE		Sample #112145001								
Nitrobenzene-d5	4165-60-0				79.4	25 - 144				05/04/11
2-Fluorobiphenyl	321-60-8				85.6	52 - 113				05/04/11
Terphenyl-d14	98904-43-9				85.9	63 - 132				05/04/11
BLANK		QC Sample #54678								
Nitrobenzene-d5	4165-60-0				62.8	25 - 144				05/04/11
2-Fluorobiphenyl	321-60-8				70.2	52 - 113				05/04/11
Terphenyl-d14	98904-43-9				72.9	63 - 132				05/04/11
LCS		QC Sample #54679								
Nitrobenzene-d5	4165-60-0				80.2	25 - 144				05/04/11
2-Fluorobiphenyl	321-60-8				86.4	52 - 113				05/04/11
Terphenyl-d14	98904-43-9				84.6	63 - 132				05/04/11
MS		QC Sample #54680								
		Original 112145001								
Nitrobenzene-d5	4165-60-0				80.4	25 - 144				05/04/11
2-Fluorobiphenyl	321-60-8				84.4	52 - 113				05/04/11
Terphenyl-d14	98904-43-9				85	63 - 132				05/04/11

Analytical Comment Report

Attention: Michael Neely

Group #

WSCF112145

112145001

B2D7B5

PAHSIM: The MS extract was lost during the solvent reduction process. The MSD was renamed to the MS to avoid LIMS processing problems.

Quality Control Comments

Department Inorganic

54655

B2CCB6(112108010MS)

Analyte Strontium - ICP-2008 MS All possible metal

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

54656

B2CCB6(112108010MSD)

Analyte Strontium - ICP-2008 MS All possible metal

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

Analytical Comment Report

Attention: Michael Neely

Group # WSCF112145

Quality Control Comments

Department Organic, Semivolatiles

54678	BLANK for HBN 181557
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The MS extract was lost during the solvent reduction process. The MSD was renamed to the MS to avoid LIMS processing problems.

54679	LCS for HBN 181557 [ORGP/1605]
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PAHSIM: The MS extract was lost during the solvent reduction process. The MSD was renamed to the MS to avoid LIMS processing problems.

54680	B2D7B5(112145001MS)
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PAHSIM: The MS extract was lost during the solvent reduction process. The MSD was renamed to the MS to avoid LIMS processing problems.

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 4 pages
Including cover page

Sample Receipt

Waste Sampling and Characterization Facility
P.O. Box 1970 S3-30, Richland WA 99352
Phone: (509) 373-7004/FAX: (509) 373-7134

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

ATTN: Michael Neely

Customer Code: CHPRC

PO #: 402751/ES20

Work Order #: 112145

Profile #: F11-104-001

Proj. Mgr.:

Phone:

The following samples were received from you on 5/2/2011 12:35:00 PM. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample #	Sample ID	Matrix	Collected	Received
Tests scheduled				
112145001	B2D7B5	WATER	5/2/2011 07:53	5/2/2011 12:35
2008-W; 6010-W; PAHSIM-W				

Test Acronym Description

Test Acronym	Description
2008-W	ICP-MS (W)
6010-W	ICP-AES (W)
PAHSIM-W	PAHSIM by 8270D SemiVOA (W)

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F11-104-001	PAGE 1 OF 2
COLLECTOR <i>Scales</i>	COMPANY CONTACT BAUER, RG	TELEPHONE NO. 373-3931	PROJECT COORDINATOR BAUER, RG	PRICE CODE C05	DATA TURNAROUND 7 Days / 7 Days
SAMPLING LOCATION 600 220 Ver EB - 1	PROJECT DESIGNATION ARRA Verification Sampling of the 600-220 (M-51 Anti-Aircraft Gun Site) - Q	SAP NO. F11-104	COA 30270JES10	ATR QUALITY J	ORIGINAL
ICE CHEST NO.	FIELD LOGBOOK NO. <i>F11F N-507-11</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	BILL OF LADING/AIR BILL NO. N/A	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A	PRESERVATION Cool-4C	NO. OF CONTAINER(S) 1		
MATRIX* A-Air DL-Dross Liquids US-Liquid S-Solids L-Liquid O-Oil S-Soil SE-Sediment T-Tissue V-Vegetation W-Water W-Water X-Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	HOLDING TIME 7/80 Days	VOLUME 500mL		
	112145				
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
820785	WATER	5-2-11	0753

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>J. Scales</i>	DATE/TIME 5-2-11 1235	RECEIVED BY/STORED IN <i>M. Nelson</i>	DATE/TIME 5/2/11 1235	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	
PRINTED ON 4/27/2011				A-009-018 (REV 2)	

Sample Receipt

Chain of Custody

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F11-104-001	PAGE 2 OF 2
COLLECTOR <i>Seales</i>	COMPANY CONTACT BAUER, RG	TELEPHONE NO. 373-3931	PROJECT COORDINATOR BAUER, RG	PRICE CODE COS	DATA TURNAROUND 7 Days / 7 Days
SAMPLING LOCATION 400-770 Ver F11	PROJECT DESIGNATION AIRBA Verification Sampling of the K10 770 (H-51 Anti Aircraft Gun Site) - Q	SAF NO. F11-104	AIR QUALITY <input type="checkbox"/>	ORIGINAL	
ICE CHEST NO.	FIELD LOGBOOK NO. <i>HWP-N-527-11</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	COA 302703ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A			
SPECIAL INSTRUCTIONS					
<p>** The CACN for all analytical work at WSCF laboratory is 402751ES20.</p> <p>** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.</p> <p>** The laboratory shall report only the requested constituents of concern in all preliminary or final hardcopy data reports, or EDDs. QC results for non-requested constituents need not be reported, but samples chosen for matrix spike, and all spike compounds shall be identified in the final data report narrative. No TICs shall be reported.</p> <p>(1) 8270-SYDA-GCMS: SIM {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};</p> <p>(2) ICP Metals - 6010 (Add-On) {Lithium}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc};</p> <p>ICP/MS - 200.8 (Add-on) {Arsenic, Beryllium, Boron, Lead, Selenium, Strontium, Thallium, Tin, Uranium};</p>					

PRINTED ON 4/27/2011

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May 19, 2011 15:05:29

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Group # WSCF112145